

## ABSTRACT OF THE DISCLOSURE

A dependency analysis unit creates a dependency graph showing dependencies between instructions acquired from an assembler code generation unit. A precedence  
5 constraint rank calculation unit assigns predetermined weights to arcs in the graph, and adds up weights to calculate a precedence constraint rank of each instruction. When a predecessor and a successor having a dependency and an equal precedence constraint rank cannot be processed in  
10 parallel due to a resource constraint, a resource constraint evaluation unit raises the precedence constraint rank of the predecessor. A priority calculation unit sets the raised precedence constraint rank as a priority of the predecessor. An instruction  
15 selection unit selects an instruction having a highest priority. An execution timing decision unit places the selected instruction in a clock cycle. The selection by the instruction selection unit and the placement by the execution timing decision unit are repeated until all  
20 instructions are placed in clock cycles.